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Patent claims:

- 5 1. A biological construct, produced at least partly in vitro,
which comprises at least the following constituents:
 - a) at least one biocompatible carrier material;
 - 10 b) cartilaginous tissue comprising chondrocytes and/or
chondroblasts and cartilaginous substance;
 - c) osseous tissue comprising osteoblasts and/or
osteocytes and bone substance;
 - 15 cartilaginous and osseous tissue being firmly connected
to one another.
- 20 2. The biological joint construct as claimed in claim 1,
characterized in that the osseous tissue contains, for the
improvement of angiogenesis, a growth factor protein, endothelial
cells or their precursor cells, or cells transfected with a growth
factor gene.
- 25 3. The biological joint construct as claimed in claim 1 or 2,
characterized in that it has a joint side which can have contact
with another joint part and whose surface consists of
cartilaginous tissue, and an anchor side which can be used for
anchoring the joint construct in the bone shaft and which consists
30 of osseous tissue.
4. The biological joint construct as claimed in claim 3,
characterized in that the anchor side has at least one cylindrical
peg which can be connected to the bone shaft.
- 35 5. The biological joint construct as claimed in one of claims 1-4,
characterized in that it additionally comprises at least one

pressed into the cartilaginous layer such that it is firmly bound and,
in that later the population of the bone component is carried out by means of osteoblasts.

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17. The process as claimed in one of claims 11-16, characterized in that it furthermore comprises the production of a ligament component made of fibrous materials and fibroblasts.

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18. The process as claimed in one of claims 11-17, characterized in that it furthermore comprises the production of a capsular component made of fibrous, membranous materials and fibroblasts.

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19. The process as claimed in one of claims 11-18, characterized in that at least one ligament connection site for the attachment of joint ligaments is attached to the carrier material of the bone component.

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20. The process as claimed in one of claims 11-19, characterized in that at least one capsule connecting area is attached to the carrier material of the bone component for the attachment of a joint capsule.

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21. The process as claimed in one of claims 11-20, characterized in that at least one ligament component is attached to the ligament connection site of the bone component as claimed in claim 19.

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22. The process as claimed in one of claims 11-21, characterized in that at least one capsule component is attached to a capsule connection area of the bone component as claimed in claim 20.

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23. The process as claimed in one of claims 11-22, characterized in that endothelial cells, a growth factor protein, or cells transfected with a growth factor gene are added to the bone component.

32. The process as claimed in one of claims 26-31, characterized in that the isolated cells are stromal cells.

5 33. A bone tissue, comprising the following constituents:

a) osteoblasts which have been transfected in vitro by nonviral gene transfer with a gene which codes for a growth factor;

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b) at least one biocompatible carrier material.

34. The bone tissue as claimed in claim 33, characterized in that it can be obtained by a process as claimed in one of claims 24-32.

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35. The use of bone tissue as claimed in claim 34 in a process for the production of a biological joint construct as claimed in one of claims 11 to 23.